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## THE FIRST CROSSING OF GREENLAND.

THE character of the interior of Greenland has long had a special interest for geologists from its bearings on the theory of glacial action, which appears to have been so potent an agent in the moulding of the earth's surface. Nordenskiöld in 1870, and again in 1883, penetrated some distance into the interior on the 'Inland Ice,' but, in common with others, still adhered to the view that Greenland is not wholly ice-covered. It was to settle this point that Nansen undertook his expedition of 1888. (*The First Crossing of Greenland*. By Fridtjof Nansen; translated from the Norwegian by H. M. Gepp. 2 vols. Longmans, 1890.)

It is impossible to read Nansen's fascinating narrative without becoming convinced that love of adventure supplied an impulse without which the desire to solve a point mainly interesting to geologists would scarcely have induced the young student of zoology to leave his own studies and incur the hardships and dangers of so arduous an undertaking. Nansen was well known in his own country as a proficient in the national pastime of 'skiløbning'—the art of traversing snow and ice on the long wooden runners known as 'ski.' The success which attended the use of 'ski' in Nordenskiöld's attempt on the Inland Ice in 1883, convinced Nansen that it would be possible for a party of strong and skilful 'skiløbers' to cross the Inland Ice on their 'ski'; each man dragging a light sledge containing the necessary supplies. Funds for the expedition having been obtained, largely through private generosity, Nansen found no difficulty in procuring the co-operation of kindred spirits, imbued with something of the old viking love of adventure, and all, like himself, proficient in the use of 'ski.' It was thought well to procure the assistance of Laplanders on account of their hardihood and power of enduring cold. The two Laps who completed the party of six undertook the work

purely as a matter of business. They proved to be the least useful members of the expedition.

Dr Nansen gives due prominence in his book to the description of the outfit. 'The expedition,' he says, 'owed its origin entirely to the Norwegian sport of "skiløbning." A whole chapter is devoted to this subject, and is among the most instructive in the book. A map is given showing the enormous extent of country in Northern Europe and Asia in which 'ski' are employed. A zoologist feels bound to apply the doctrine of evolution to every problem, and it is ingeniously argued that the primitive method of facilitating progression over snow by means of a wooden board strapped to the foot is susceptible of development in two ways. The first is by making the board long and narrow, the final result being the Norwegian 'ski.' The second method is that of substituting for the board a framework with a network of sinews stretched across, the highest development of this form being the Indian snow-shoe. This latter form is more suitable where the snow is very soft; and the snow-shoes with which the expedition was furnished were, in fact, occasionally, though not often, used in place of the 'ski.'

Nansen determined to start from the east coast, a method opposed to the traditions of Arctic exploration. One advantage is apparent—namely, that if a start were made from the west, the route must ultimately be retraced. On the other hand, former attempts to effect a landing on the east coast had failed owing to the fact that the cold polar current brings down a barrier of ice which renders access to the coast almost impossible even in summer. On July 17, 1888, the little expedition in their two boats put off from the 'Jason' in latitude sixty-five and a half degrees north, confidently expecting to make their way through the floe-ice direct to the shore. This, however, was not to be. The floes jammed; they were compelled to haul their boats up on the ice; and a rapid current carried them southwards; whilst the parting of the ice and the encroachment of the sea rendered their situation

perilous in the extreme. After ten days of terrible anxiety, a fortunate change of conditions brought them close to shore, and a landing was at length effected, but two hundred and forty miles south of the point at which they had aimed. The next fortnight was occupied in working northwards close under the shore, a time of less peril but of strenuous exertion. An interesting account is given of the meeting with a camp of the heathen Eskimos of the east coast. The Arctic traveller has one advantage over explorers in most parts of the globe—the natives are uniformly friendly. 'A smiling face,' says Nansen, 'is the Eskimo's greeting to a stranger.'

On August 15, being now in latitude sixty-four and a half degrees, it was determined to begin the work of crossing. The boats were abandoned, and the ascent of the eastern slope of the Inland Ice was begun. The ice was intersected by numerous crevasses running generally at right angles to the direction of ascent. The work was exhausting and the danger great, yet no serious accident occurred. 'It was singular,' the author remarks, 'that none of us ever fell through a crevasse further than the armpits.' After some days' climbing, the gradient became less steep, and the party found themselves on safer ground. Three days of incessant rain now obliged them to remain idle in their tent. The rest would have been more welcome had not the inexorable leader kept the party on short rations when work was not exacted. The Laps, who thought the outlook very bad, devoutly read their Testament. The Norwegian gentlemen in their sleeping-bag studied the 'Nautical Almanac.'

The rain having at length ceased, the march was resumed; but by August 26th—altitude six thousand feet—it was apparent that the slowness of their progress hitherto had rendered it impossible to reach Christianshaab before the departure of the last ship for Europe. The course was accordingly altered for the more southerly settlement of Gothaab. Availing themselves of a favourable wind, more rapid progress was made by tying the sledges two abreast and sailing. On the 29th of August the wind dropped, and the work of hauling was resumed. On the 31st, *land* was seen for the last time, from this point the country being completely covered with snow. The character of the coasts of Greenland indicates that the country is as mountainous as Norway. So vast is the accumulation of snow, that, as Nansen has now shown, the valleys are filled by it, and the mountains are buried beneath its smooth surface. For many days the journey was over an horizontal plateau. The progress made was only five to ten miles a day, owing to the difficult nature of the snow. The cold, too, was intense at this altitude of from eight to nearly ten thousand feet—greater, indeed, than has been registered at this time of year in any other part of the globe.

The monotony of this part of the journey seems to have told somewhat on the spirits of the expedition. At this point only does Nansen's story lose something of its singular cheerfulness and elasticity of style. The solution of the problem they had come so far to solve was

before their eyes, but 'food,' he says, 'was the axis on which our whole life turned, our ideal of enjoyment was—enough to eat.' The ideal was far from being attained on an allowance of one kilo (two and one-fifth pounds) per diem in such an atmosphere and with unremitting toil. By September 11 a fall of the ground was just perceptible; on September 17, just two months after leaving the 'Jason,' a snow-bunting was seen, the harbinger of land. The 19th was the most exciting day of the whole journey. The ground was now sloping decidedly to the west; and a strong easterly gale springing up, the sledges were lashed together as on a former occasion and sails hoisted. The violence of the wind rendered the sledges unmanageable, till a device for steering was contrived. A pole was fastened between the sledges, projecting in front, and this was grasped by the steerer, who determined the course of the sledge by the direction in which he turned his 'ski.' The pace was terrific, and the danger correspondingly great; but the practised 'skilöbers' were equal to their task. No accident happened, and the spirits of the party rose with the exhilaration of rapid motion. Towards evening, *land* was seen in the distance. The descent became steeper; the ice-slope of the western side had been reached; and a sudden exertion of strength and skill by the steersman alone prevented the foremost sledge from falling down a broad crevasse.

More cautious progress was now necessary; but the journey was continued by moonlight till, finding themselves amongst a perfect network of crevasses, a halt was at length called after a run of more than five-and-thirty miles. That night, Nansen and Sverdrup forgot to wind up their watches, a remissness not hard to understand after the strain of such a day. Captain Dietrichson, however, in whose punctual performance of every duty Nansen sees the influence of military training, was not remiss; so that the determinations of longitude were fortunately not thrown out. During four more days the dangers of the western ice-slope were encountered, till, on September 24, their feet once more felt the springy earth, and the Inland Ice was crossed. The distance from the starting-point was about two hundred and fifty miles as the crow flies. They struck the head of a fiord the opening of which is a little to the south of Gothaab. In the course of a few days a frail boat was constructed from the tent, and some willow boughs cut from a thicket. On September 28, Nansen and Sverdrup—the sailor of the party—embarked, leaving the rest behind in camp with a not too abundant supply of provisions. Gothaab was reached on October 3; and shortly afterwards, the other members of the expedition were brought to the settlement in boats.

Thus was accomplished the first crossing of Greenland, a great feat, the performance of which cost neither life nor limb. No disagreement marred the life of the comrades, the narrative affording in this respect a refreshing contrast to much of the recent literature of travel. As an author, Nansen is as successful as in his other undertakings. His style is vigorous and buoyant; and the diligence with which he used pencil and camera has enriched two volumes with illustrations many of which have considerable artistic

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merit. The translator's work, too, has been thoroughly well done.

Nansen goes north again in 1892. All will wish him success in his second venture.

## DUMARESQ'S DAUGHTER.

### CHAPTER IX.—FOR STRATEGIC REASONS.

'GEORGE!' Mrs Maitland remarked abruptly to her husband one evening, a few weeks later, as they sat by themselves, towards the small-hours, in the High Ash drawing-room, 'we must put our foot down without delay about Geraldine and this flighty girl of poor crazy old Dumaresq's.'

The General wavered. He was an old soldier, and he knew that when your commanding officer gives you a definite order, your duty is to obey and not to ask for reasons or explanations. Where Geraldine was in question, however, discipline tottered, and the General ventured to temporise somewhat. He salved his conscience—his military conscience—by pretending not quite to understand his wife. 'Put our foot down how?' he managed to ask, prevaricating.

Mrs Maitland, however, was not the sort of woman to stand prevarication. 'You know perfectly well what I mean,' she answered, bridling up, 'so don't make-believe, George, you haven't observed it yourself. Don't look down at the carpet, like a fool, like that. You've seen as well as I have all this that's going on every day between them. Geraldine's behaved disgracefully—simply disgracefully. Knowing very well we had an eye ourselves upon that young man Linnell for her—a most eligible match, as you found out in London—instead of aiding and abetting us in our proper designs for her own happiness, what must she go and do but try her very hardest to fling him straight at the head of that bread-and-butter miss of poor crazy old Dumaresq's? And not only that, but what's worse than all, she's helped on the affair, against her own hand, by actually going and playing gooseberry for them.'

'But what can we do?' the General remarked helplessly. 'A girl of Geraldine's spirit!'

His commanding officer crushed him ruthlessly. 'A girl of Geraldine's spirit!' she repeated with scorn. 'You call yourself a soldier! Why, George, I'm ashamed of you. Do you mean to tell me you're afraid of your own daughter? We must put our foot down. That's the long and the short of it!'

'How?' the General repeated once more with a shudder. It went against the grain with him to repress Geraldine.

'There are no two ways about it,' Mrs Maitland went on, waving her closed fan like a marshal's bâton before her. 'Look the thing plainly in the face, for once in your life, George. She *must* get married, and we *must* marry her. Last year, she refused that rich young Yankee at Algiers. This year she's flung away her one chance of this well-to-do painter man. She's getting on, and wasting opportunities. There's Gordon's got into difficulties at Aldershot again: and Hugh, well, Hugh's failed for everything; and the boys at Winchester are coming on fast: and unless Geraldine marries, I'm sure I don't know what on earth we're ever to do for ourselves about her.'

'Well, what do you want me to do?' the General asked submissively. A soldier mayn't like it, but a soldier must always obey orders.

'Do? Why, speak to her plainly to-morrow,' Mrs Maitland said with quiet emphasis. 'Tell her she mustn't go round any more wasting her time with these half-and-half Dumaresqs.'

'Dumaresq's a gentleman,' the General said stoutly.

'Was one, I daresay. But he's allowed himself to sink. And, anyhow, we can't let Geraldine aid and abet him in angling to catch this poor young Linnell for his daughter Psyche, or whatever else he calls the pink-and-white young woman. It's a duty we owe to Mr Linnell himself to protect him from such unblushing and disgraceful fortune-hunting. The girl's unfitted to be a rich man's wife. Depend upon it, it's always unwise to raise such people out of their natural sphere.—You must speak to Geraldine yourself to-morrow, George, and speak firmly.'

The General winced. But he knew his place. 'Very well, Maria,' he answered without a murmur. He would have saluted as he spoke had Mrs Maitland and military duty compelled the performance of that additional courtesy.

So next morning after breakfast, with many misgivings, the General drew his daughter gently into his study, and begged her in set form to abstain in future, for her mother's sake, from visiting the Dumaresqs.

Geraldine heard him out in perfect composure. 'Is that all, Papa?' she asked at last as the General finished with trembling lips.

'That's all, Geraldine.' He said it piteously.

'Very well, Papa,' Geraldine answered, holding herself very tall and erect, with one hand on the table. 'I know what it means. Mamma asked you to speak to me about it. Mamma thinks Mr Linnell might marry me. There, mamma's mistaken. Mr Linnell doesn't mean to ask me, and even if he did, I don't mean to take him.'

'You don't?'

'No, Papa; I don't. So that's the long and short of it. I don't love him, and I won't marry him. He may be as rich as Croesus, but I won't marry him. More than that; he's in love with Psyche; and Psyche, I think, is in love with him. They want my help in the matter very badly; and unless somebody takes their future in hand and makes the running very easy for them, I'm afraid Mr Linnell will never summon up courage to propose to Psyche. He's so dreadfully shy and reserved and nervous.'

'So you mean to go there still, my child, in spite of what I say to you?'

Geraldine hesitated. 'Father dear,' she cried, putting her graceful arms round the old man's neck tenderly, 'I love you very, very much; but I can't bear not to help poor dear lonely Psyche.'

The General's courage, which was all physical, oozed out like Bob Acres's at the palms of his hands. This was not being firm; but he couldn't help it. His daughter's attitude had his sincerest sympathy. The commanding officer might go and be hanged. Still, he temporised. 'Geraldine,' he said softly, bending her head to his, 'promise me at least you won't go to-day.—Your mother'll be so annoyed with me if you go to-day.—Promise me to stop at home and—'

'And protect you, you old dear!' She reflected

a moment. 'Well, yes; I'll stop at home just this once, if only to keep you out of trouble. Give Mr Linnell a chance of speaking if he really wants to. Though what on earth poor Psyche'll do without me I'm sure I don't know. She's expecting me to-day. She counts on my coming. I'll have to write and tell her I can't come; and Psyche's so quick, I'm afraid she'll guess exactly why I can't get round this morning to help her.'

The General breathed more freely once more. 'There's a dear girl,' he said, stroking her hair gently. 'Your mother would have been awfully annoyed if you'd gone. She thinks it's wrong of you to encourage young Linnell in his flirtation with that girl. Though I quite agree with you, Geraldine, my dear, that if you don't love a man, you oughtn't to marry him.—Only—it'd be a very great comfort to us both, you know, my dear, if only you could manage ever to love a man who was in a position to keep you as we've always kept you.'

'I don't know how it is,' Geraldine answered reflectively. 'I suppose it's original sin or the natural perversity of human nature coming out in my case; but I never *do* like men with money, and I always fall in love with men without a ha'penny.—But, there; I've no time to discuss the abstract question with you now. I must run up at once and write this note to poor Psyche.'

#### CHAPTER X.—AS BETWEEN GENTLEMEN.

That same morning, Linnell sat in his own room at the Red Lion, with a letter of Sir Austen's lying open before him, and a look of sad perplexity gathering slowly upon his puckered brow. It was natural, perhaps, that Sir Austen should wish to settle the question once for all before leaving England: natural, too, that Sir Austen should look at the whole matter purely from the point of view of Frank Linnell, 'the parson in Northumberland,' whom alone he had been sedulously taught from his childhood upward to consider as his cousin, though the law would have nothing to do with countenancing their unacknowledged relationship. And yet Linnell was distinctly annoyed. The tone of the letter was anything but a pleasant one. 'Sir Austen Linnell presents his compliments'—What a studiously rude way of addressing his own first-cousin, his next of kin, his nearest relative, the heir to the baronetcy! Linnell took up his pen and, biting his lip, proceeded at once, as was his invariable wont, to answer offhand the unpleasant communication.

'Mr C. A. Linnell presents his compliments'—No, no; as he wrote, he remembered with a blush that verse of Shelley's, 'Let scorn be not repaid with scorn;' and rising superior to the vulgar desire to equal an adversary in rudeness and disrespect, he crumpled up the half-written sheet in his hands, and began again upon a fresh page in more cousinly fashion:

DEAR SIR AUSTEN—I can readily understand that your friendship and affection for my half-brother Frank Linnell should prompt you to write to me on the unfortunate question of the succession to the title before leaving England. The subject, I need hardly say, is a painful one to every one of us: to none of us more so, I

feel sure, than to myself. But as you are the first to open communications upon it, there can be no reason on earth why I should not answer your queries frankly and straightforwardly without reserve. In the first place, then, during your lifetime I can promise you that I will not overtly or covertly lay claim in any way to the heirship to the title and estates of the baronetcy. In the second place, during my brother Frank's lifetime I will not lay claim to the baronetcy itself, should it ever fall to me, thereby implying any slight upon him or upon my father's memory. But, in the third place, I will not, on the other hand, permit him to put any such slight upon me or upon those whose memory is very dear to me by claiming it for himself without any real legal title. Such a course, I think, would imply a dishonour to one whom I revere more than any other person I have ever met with. I hope this arrangement, by which I practically waive my own rights and my place in the family during my brother's life and yours, will prove satisfactory and pleasing to both of you.—With my best wishes for your success in your African trip, I am ever your sincere friend and cousin,

CHARLES AUSTEN LINNELL.

He wrote it at one burst. And when he had written it, he felt all the lighter for it.

He had an appointment that morning at eleven with Psyche, and as soon as the letter was off his mind, he went round to the Wren's Nest trembling with suppressed excitement. In his hand he carried the water-colour sketch of the cottage, now completed and framed, for presentation to Psyche. If he saw her alone, he had it half in his mind to ask her that morning whether or not she would be his for ever. Those lines from the Lord of Burleigh kept ringing in his ears—'If my heart by signs can tell, Maiden, I have watched thee daily, And I think thou lov'st me well.' Surely, surely, Psyche loved him. So timid and sensitive a man as himself could not have been mistaken in his interpretation of her frank confidence and her crimson blushes.

He was not destined to find Psyche alone, however. As he entered, Haviland Dumaresq met him in the garden, tearing up a note from Geraldine to his daughter. The note had annoyed him, if so placid a man could ever be said to display annoyance. It mentioned merely 'in great haste' that Geraldine would not be able to come round and assist at the sitting to-day, as Mamma was dreadfully angry about something, and poor Papa wanted her to stop and break the brunt of the enemy's assault for him. Psyche knew in a moment what the letter meant—she had old experience of Mrs Maitland's fancies—and handed it without a word of explanation to her father. The great philosopher took it and read it. 'All women are alike, my child,' he said philosophically, crumpling the paper up in his hand: 'they insist upon making mountains out of molehills. And there's nothing about men that irritates them more than our perverse male habit of seeing the molehill, in spite of all they may say to magnify it, in merely its own proper proportions. A due sense of social perspective is counted to our sex for moral obliquity.—Go in and get yourself ready, Psyche. I'll wait out here and talk to Mr Linnell for you.'



When Linnell arrived upon the scene, picture in hand, a few minutes later, Haviland Dumaresq, straight and proud as ever, stepped forward to meet him, tearing up the peccant letter into shreds as he went, and scattering its fragments over his own dearly-loved and neatly-kept flower-beds. He saw what the water-colour was at a glance, and taking the painter's hand in his own, with some chilliness in his manner—for it was clear this young man was seeing quite too much of Psyche, when even Mrs Maitland noticed it and animadverted upon it—he said with the air of a patron of art, not magniloquently at all, but simply and naturally: 'So you've brought home the sketch. We shall be glad to have it.'

Linnell was taken aback by the quiet business assumption implied in his tone, and looking up quickly into the great man's face—for to him Dumaresq was always great in whatever surroundings—he stammered out in answer with a certain shamefaced awkwardness: 'I hoped Miss Psyche might be good enough to accept it from me.'

The philosopher glanced back at him with an inquiring gaze. 'Oh no,' he said coldly, examining the picture with a critical eye. 'This sketch was a commission. I asked you to do it for us. You must let me pay you whatever's proper for it.'

Linnell hardly knew whether to feel more amused or annoyed. Dumaresq, he felt sure, must have received his eight hundred guineas already, and be inclined to assume a princely air of patronage to art on the strength of this sudden access of unwonted opulence. Still, even though the money came directly out of his own pocket, he couldn't bear to sell the sketch of Haviland Dumaresq's cottage to the great philosopher—and to Psyche's father. 'It was a labour of love,' he ventured to say with quiet persistence, in spite of Dumaresq's chilling austerity. 'I did it with more than my usual success, I dare to think, because I was inspired by the importance of the subject, and because I thought you would allow me to present it as a memento to Miss Dumaresq. Besides, you know, it's only right she should accept it from me in return for the trouble I've given her about the other painting. Your daughter has put me under great obligations in permitting me to paint her in the foreground of my Academy picture.'

Dumaresq drew himself up even more stiffly than before. 'My daughter,' he said with a very cold and clear intonation, 'is not, as you seem to think, a professional model. She doesn't expect payment in any way for her services. If her face is of use to you for the purposes of art, we are both of us glad that art should be the richer for it. A beautiful face is a gift of nature, intended for the common good of humanity: a beautiful picture makes the world so much the better for its existence and its beauty. I would not grudge to art the power to multiply beautiful faces—and Psyche's is beautiful—to the utmost of its ability. But you must tell me how much I owe you for this sketch, all the same. It's unbecoming the dignity both of art and of philosophy that an artist and a philosopher should haggle together in the matter of price over such a subject.'

Linnell bowed his head in silent acquiescence. After all, he thought to himself, fifty pounds was

not worth fighting about; the money in the end came out of his own pocket. And he didn't wish to offend Psyche's father. In a very little time, perhaps—and his heart beat high—it would matter very little which of them had the money, himself or Psyche. 'If you insist upon it, Mr Dumaresq,' he said at last with a painful effort, 'though it's a great disappointment to me not to be permitted to offer the picture as a present to your daughter, we'll make it, as you prefer, a matter of business. Suppose, then, by way of putting a price upon it, we set down the value at twenty guineas.'

Haviland Dumaresq drew a long breath. This was eleven pounds more than his utmost imagination. But he was far too proud to show his surprise openly. He had Macmurdo and White's twenty-pound note that moment in his pocket. He drew it forth with calm determination, like a man to whom twenty pounds is less than nothing, and adding to it a sovereign from his purse, laid it simply in the painter's palm. The coin burned into Linnell's hand, for he, too, was proud—proud and sensitive. He had never been paid so brusquely in his life before, and the hard matter-of-fact mode of the business transaction made him for the very first time feel ashamed of his profession. But he gave no outward sign, any more than Dumaresq himself had done, of his internal feelings. He thrust the money loose with his hand into his trousers pocket, and muttering something inarticulate about the lights being bad to-day for painting, begged to be excused from going on with the portrait. Then he turned around, and walked slowly out of the garden gate, and up on to the Downs, where he wandered long alone, reflecting bitterly with himself that great men when you come to see them at close quarters fail often in the end to correspond with one's preconceived opinion of their innate greatness. It must be always so. They give the people of their best, of course; and the people judge the whole by the sample.

As for poor Psyche, who, waiting in the drawing-room, had heard this brief colloquy through the open window, she went up-stairs to her own bedroom, and flinging herself on the bed in her Arab costume, cried her poor little eyes out to think that Papa should behave so harshly to that dear Mr Linnell, who admired him so much, and would give his life almost to do anything for either of them.

For Psyche, too, in her clear girlish way, was quite certain that Linnell loved her.

## WOODCOCKS IN SPRING AND AUTUMN.

MARCH—Woodcock-shooting. This is the heading of the month in an Illustrated Almanac published in 1854. There is a quaint picture of two gentlemen in long-waisted coats and immense leggings beating a cover with the help of two brace of beautiful little cocker spaniels, one of whom has just flushed a woodcock.

It seems barbarous to us now to shoot these birds after the legitimate season, the winter, has closed. Though the law does not protect them till the 1st of March, few sportsmen will kill them after pheasant-shooting is over.

The chief cause of this forbearance has been that we have at last learned that woodcocks will, if undisturbed in February, frequently stay to breed with us. Formerly, numbers were killed during the spring migration, and as the woods were constantly disturbed, few remained to breed. A hundred years ago a woodcock's nest was a great rarity; now there is hardly a county in England in which a pair have not been known to breed. Sussex is one of their favourite places. Mr Monk has calculated that there are from one hundred and fifty to two hundred nests each year in Eastern Sussex alone.

The increase in woods in Scotland has also been in their favour. St John says that every year the number that breed in Sutherland and Ross-shire increases with the growth of the fir plantations. They are very early nesters, for eggs have been found during the first week in March. This was, however, rather an exceptional case, for the birds generally lay at the end of that month. The eggs are deposited in some dry spot at the foot of a tree, or in a clump of heather, often at a long distance from the feeding-grounds. They are four in number, of a dirty yellow ground colour, blotched and spotted with brown and gray.

The old birds carry their young to the springs and marshes, and will also transport them if threatened with danger. Though gamekeepers and Swedish naturalists had asserted the fact, and it was indeed self-evident, owing to the great distance from marsh-land at which the nest is sometimes placed, the method of carrying the young was long debated by naturalists. The bill seemed ill adapted for supporting a weight, the feet had little grasping power, and it seemed impossible for either to hold the young ones firmly. Scopoli, an Austrian naturalist, who wrote in 1770, said: 'The woodcock, when flying from an enemy, carries its young ones in its beak'—a statement Gilbert White evidently doubted, 'though he will not say a thing is false because he has not been a witness of the fact.' Later observations have cleared up the mystery. The little birds are generally clipped tight between the tarsi or else between the thighs. In the former case, they hang, as Mr Stuart, the observer, said, 'like a parachute;' in the latter, they are pressed close to the body.

At the end of March and beginning of April they may sometimes be seen at dusk flitting to and fro in the glades of woodland country, and tilting at one another with their long-bills. Occasionally one will pursue another over the tree-tops, wheeling and twisting with wonderful rapidity. This is the courting-time; for many of the birds that nest in Scandinavia pair before arriving at their breeding-grounds, where they are later in nesting than in England. Before the close-time was fixed, poachers and pot-hunters used often to lie in wait for and kill the birds in these glades; a practice the Swedes still continue, in spite of the birds being at the time in miserable condition.

By far the greater number of the woodcocks killed in England are birds that have come from the North. The first large flight generally occurs

during the second week in October. It is chiefly composed of females, for, like chaffinches and some other birds, the two sexes separate at the approach of winter. Soon the cock-birds follow, and by the middle of November all have left Sweden and Norway.

Now that posts of observation have been established at most of the lighthouses round our coasts, we are supplied with much valuable and reliable information on the migration of birds. Mr John Cordeaux has carefully investigated the reports from the signal stations, and finds that, contrary to the old assertion that the birds liked a moonlight night, the majority come in hazy weather with drizzling rain. Unless the wind is very strong, they seem little affected by it, and often come in the face of a strong north-west wind. October 12, 1882, was a typical day, or rather night, with a strong easterly wind and drizzling rain. Apparently, the woodcocks left Norway at dusk, and crossed the North Sea in slightly diverging lines, for Mr Cordeaux received reports of their arrival from every signal station between Orfordness in Suffolk and the Firth of Forth.

Sometimes considerable numbers travel farther westward than they had intended. Probably a strong wind has carried them over England during the darkness, and at daybreak the birds find themselves over the Atlantic. In 1848 the sea beyond Land's End was one day strewn with dead woodcocks; and Gilbert White records an instance of a great number arriving in the Scilly Islands. Their powers of flight are so great, that unless the wind is very high, they are not much exhausted by the journey. Unlike the birds that land on our southern shores in the spring migration, the first arrivals are in excellent plumage and condition.

Though great numbers arrive in England on the same day, they do not, as a rule, migrate in flocks, but fly independently of leaders. Geese, ducks, cranes, and many other birds invariably move southward in regular bodies; but a flock of woodcocks is rarely seen.

The birds vary so much in size and colouring that it was long maintained that there were two distinct varieties. 'We have two kinds of cocks,' wrote Newman in his 'Letters of Rusticus'—'the little dark-coloured fellow and the large light-tinted bird, the former being much the rarer.' Many naturalists thought that the latter was the hen-bird; but Gould showed that the balance of size was slightly in favour of the male woodcock. All the best authorities seem now to be agreed that there is but one species of '*Scolopax Rusticola*' in Europe, though the individuals vary greatly both in weight and plumage. Young birds weigh from nine to ten ounces, the older from eleven to thirteen. Sometimes a Brooding-nag specimen is recorded; the largest of all, 'both on scales and steelyard,' weighed twenty-seven ounces. Of this specimen, an eminent naturalist writes: 'It is impossible to contradict a lady [the authority], but a bird of this size I have never seen.'

Though the number of home-bred birds is steadily increasing, the total number of woodcocks shot in the kingdom is undoubtedly smaller than formerly. Seventy years ago they rarely cost more than sixpence a couple; now, their price is from three to four shillings each.

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Increased demand may have done much towards enhancing their price, but our grandfathers fully appreciated woodcock on toast. The couplet—

If the partridge had the woodcock's thigh,  
It would be the best bird that ever did fly—

is a very old one, for Willughby, who wrote in 1688, quoted it.

This decrease in numbers is probably due to the persecution they undergo in Scandinavia, where nests are harried and the birds shot in the spring; and still more to the immense numbers killed in Greece and Albania. Since these great woodcock preserves have been discovered, they have been constantly visited by sportsmen. As from forty to fifty couple are often killed by two guns in a single day, the total number shot must be very large, for the birds remain in these countries from November till March.

Shakespeare's frequent allusions to these birds and the springs in which they were taken show how common they were in his time. Now, it would be hard to find a man who knew how to make a spring. Mr Knox, in one of his charming books, gives a description of one which an old man made at his request; and there is also a beautiful drawing by Wolff of a woodcock caught and strangled in it.

Netting, too, was formerly largely practised, and though it has been abandoned in England, is still employed on the Continent. In Holland I have seen nets used with great success. The birds, which doze all day in some warm and dry copse, start soon after dusk for their feeding-grounds, flying low, and generally passing through any opening between trees, rather than rising above them. The gamekeepers watch in the October evenings till they discover a place such as an opening in an avenue, a glade in a wood, or a space between two copses where the birds are accustomed to pass. Here, two poles are set up, and a light net stretched between them and fastened by a cord. One that I knew well was in the avenue leading from the Great Wood at The Hague to Baron Van Brien's house Clingendael. The poles were erected just where a lane cut through the double line of beech-trees, a favourite passage for the birds. I have often met Baas Solms, the Baron's steward, on a winter evening going to hoist the net. The flight lasted for barely an hour at dark and daybreak, so that the Baas had not long to wait; not much longer than he needed to finish the big lump of tobacco which he had previously packed in the china bowl of his pipe. Holding the cord as he stood motionless by one of the poles, he was ready, as soon as he heard a 'hout snip' strike the net, to bring it down with a jerk and capture the bird.

There is no need to search for a fresh netting-place each year. For generations the birds visit the same copses and fly night after night to the same springs. While the individual woodcock is a capricious bird, here to-day and a hundred miles off to-morrow, the species is most regular in its habits. On every estate there are particular spots where keepers look each year for woodcocks. Two such places I can especially recall: one an isolated thorn-bush on the steepest and roughest side of Camsdale, in Derbyshire; the other, a big holly-bush in a Devonshire furze-break. Many other clumps of bushes on both these hills look

more snug and sheltered; but these have long been known as the woodcocks' favourite spots.

Woodcock-shooting is one of the most fascinating forms of sport. Its very uncertainty adds to its interest. It is difficult to make sure of finding the birds; and if they are missed, they are not likely to be flushed next day, for few birds are more shy and quicker to move from a district where they have been disturbed. And it is very easy to miss them, for their swift and uneven flight makes them no easy mark. But when one has been shot, how lovely are the shades of the plumage, dark brown, chestnut, and gray, matching so closely the dead leaves among which woodcocks love to sit; and what an excellent dish the bird makes when delicately browned on toast! It is amusing to watch the care that a sportsman who is something of an epicure takes with his newly-killed bird. First, the whole plumage is carefully smoothed down, and the 'painter's feathers'—the outside feather of each bastard wing—extracted and placed in his hat. Then the lower part of each leg is twisted off and the sinew drawn from the thigh; after which the bird, instead of being placed in the game-bag, is confided to the keeper, with strict injunctions to carry it by the stumps of the legs, for fear the 'trail' should be lost.

At the present time, almost all the woodcocks shot are killed when the covers are beaten at regular battues. Formerly, dogs were usually employed, and the small breed of cocker spaniels much valued. The scent of the birds is strong, and dogs hunt them keenly; and in wild rough countries spaniels are still much used when the furze-breaks and small spinnies are beaten for rabbits, woodcocks, and straying cock-pheasants. Even good shots will constantly miss woodcocks, probably in three cases out of four from being in a hurry. I once saw a woodcock flushed twice in a small wood, and missed by three good shots in succession. The bird flew close past the only 'duffer' of the party, who emptied both barrels without touching a feather. The woodcock flew about one hundred yards down the hill-side and pitched by a hedge. Away ran the sportsman without waiting to reload, making sure, from the bird's curious sidelong descent, that it was killed, and delighted at having succeeded where his more experienced friends had failed. The bird allowed him to approach within half-a-dozen yards, then flapped slowly out of the hedge, and went straight away to the opposite side of the valley. Sometimes they will when flushed fly considerable distances, but more frequently settle quickly. A story is told of a Devonshire baronet and his son who pursued a woodcock for a whole morning, and flushed him fourteen times before they succeeded in securing him.

One more story of woodcock-shooting. A certain clergyman in the west of England was appointed to a living near the coast, a favourite place for woodcock on their first arrival. They used, however, to stay but a short time, departing soon to the large woods inland. The clergyman was very fond of shooting; and as he was anxious to make a good bag, determined to begin shooting as soon as the birds came. One of his parishioners, a curious old fellow, who, when young, had been a well-known smuggler and poacher, was, he was

told, the most likely man to know first of their arrival. He lived in a tiny little cottage in a small valley leading from the low cliffs to the beach. The vicar interviewed old John Beer, who readily promised to bring him word as soon as ever the woodcocks came. A few days later, as the vicar was reading the second lesson on Sunday morning, old Beer came into church—a place, I am sorry to say, he rarely entered—and made his way up the aisle to a seat near the reading-desk. He waited till the lesson was finished, then leant over the side of the high pew, and said in a stage whisper, 'They are coom.'

The woodcock, as it has always been a favourite with sportsmen, has now a better chance of increasing in numbers; since, under the Wild Birds Protection Act of 1890, it has been assigned a close time, extending from 1st March to 1st August.

## THE RING AND THE BIRD.

### CHAPTER III.

I WENT into the dining-room, where, even at that moment of confusion, I saw that my presence created an additional awkwardness. I did not heed the others, but turned to Louisa, who paled before my glance. 'What were you saying?' I asked.

'What do you mean?'

'What did you say about Agatha a moment ago? Will you repeat it?'

Louisa's face grew sullen behind its fear. How black these gold-haired women look sometimes!

'I said that Agatha had stolen Colonel Farrer's ring.'

'That is not true!' I exclaimed.

Mrs Gretton broke in: 'Oh, Mr Laurence, I'm as sorry for you as I am for myself; though of course you can throw up Agatha, and nothing can undo the fact that she is my poor dead brother's child. But there's no use denying it; she has confessed to the theft.'

'I don't believe it. You have misunderstood her.'

'I wish that were possible. But you see the motive was there, and really we can't altogether blame her—at least'—

'What do you mean by the motive?'

'Will—her brother. You have seen him?'

'Yes; he dined here once—a pale, weak-looking young fellow.'

'It is Agatha who is weak over him—the only subject on which she ever shows any softness. She would never have left him, although his gambling and getting into debt were breaking her heart and wearing out her health, if he hadn't decided to go to America. Then I persuaded her to come here. But in less than six months he was back again. She would have gone to live with him again; but he himself put so many hindrances in the way that it was evident he didn't want her. And he really seemed to be doing better. It was a surprise as well as a shock to her when she got his letter this morning saying that he wanted money. And poor girl, I can't blame her too much if the ring tempted her.'

'I see no excuse for dishonesty,' said the Colonel, with a pompous indignation which even at that moment struck me as ludicrous. I remembered how he had obtained the ring.

'Agatha told me nothing of all this,' I said, feeling some pain that she had withheld any confidence from me.

'She wouldn't like to expose family troubles; and, besides, Will seemed to be quite steady now,' said Mrs Gretton.

'She didn't want to risk losing you,' said Louisa.

I turned to Mrs Gretton. 'Will you ask Agatha, for my sake, to come down-stairs for a few moments, and give us some explanation of this matter?'

'She won't come,' Mrs Gretton declared; but when I pressed the matter she consented to tell my sweetheart of my request. While she was gone another thought struck me, and I asked from Louisa, and obtained, Will March's address.

When Agatha appeared I think even the Colonel must have pitied her. I know the parrot did, for he cried out 'A-ga-fa!' with a wail of commiseration in his strident voice. How pale she was I cannot tell you; loose tendrils of her brown hair hung about her troubled brow, her lips trembled, and her eyes were strained and colourless with weeping. She shivered as with cold, although the evening was warm and mild, and her shoulders and arms were covered with a half-transparent white shawl drawn closely round her, under whose meshes one could barely see the outline of her hands.

I went up to her and put my arm round her waist. 'Agatha,' I said, 'do you know the accusation that is brought against you?'

'No,' she answered with wondering eyes; and Louisa ejaculated, 'What nonsense!'

'Before I tell it you,' I went on, 'I want you to know that I do not believe it, that my trust in you is as complete as ever.'

She broke into tears. 'O Frank, Frank, I don't deserve your trust; I don't think I should have done it. But I belonged to Will before I ever saw you—my little brother that I have cared for all my life! I promised my mother to look after him. I had to help him.'

'Then he needed help to-day?'

'Yes.'

'Why did you not come to me, dear? Surely I have the right to know your troubles.'

'It wasn't my trouble; it was Will's. And, beside, men—good men—are hard, even the kindest of them. You would only have said bitter things of my poor boy, and refused to aid him after all. I had to take my own way, right or wrong.'

My sweetheart's words were very bitter to me. I had trusted her, and she had not trusted me. I had been tender with her—all the more gentle because so long she had stood and fought alone, because I knew that love of any kind had never smoothed her path. I had tried, consciously tried, to make her feel that my life was bound with hers; I had risked boring her with my disappointments, my ambitions, and my hopes, rather than let her fancy I had a thought apart from her. I had brought only little troubles to her as yet, because, thank God, I had no great



ones to bring; but I had striven, even in those early days of our betrothal, to begin that union of mind and soul I looked for in our marriage. I had meant nothing but love, and to her I had seemed cold and hard, unready to help. Pain made me cruel when I thought of this, and recalled her statement that, for fear of my refusal to aid her brother, she had taken 'her own way, right or wrong.'

'And your way,' I said, 'was theft!' For I forgot at that moment that I had promised to trust her against the accusing of all the world, and I was angry with myself for feeling that if she would only raise her eyes to mine I could not but 'believe herself against herself.' Surely now, I thought, she would flash a glance of anger or reproach at me. But she only drooped her head a little lower.

'I suppose you have the right to call it that,' she said pitifully. 'I didn't think of it in that light at the moment. The need was so great, so pressing, that I only felt that the power to help was in my hands. I should have felt guilty if I had not used it. And I hoped that in three days, when I got my salary, I should be able to put all right without your knowing. I didn't know that I was doing really wrong. I can't quite feel it even now.'

'Why, Agatha,' cried her aunt, 'I don't know what you mean! That comes of going to nasty Socialist meetings, where I believe everybody is an infidel. Can't feel that you did wrong, indeed! Where is your conscience, if it doesn't tell you that you were wrong—wickedly, sinfully, wrong—in taking Colonel Farrer's ring?'

Agatha looked up now, but in utmost bewilderment. 'Colonel Farrer's ring! What have I to do with that? I have never seen it since this afternoon, when Louisa tried it on.'

'How dare you talk so, you wicked girl! In face of your own words, too. Didn't you tell Louisa yourself, when you came in, that you had taken the ring?'

'Never!'

Mrs Gretton and Louisa both broke into exclamations of horror at her dishonesty, deceit, and boldness. Agatha paid no heed to them. She turned to the Colonel, and stretched out her right hand—her left was still half-hidden by the shawl, but I could see that it was pressed against her throat, as if to keep down an hysterical sob that would hardly be repressed. 'Colonel Farrer,' she said solemnly, 'I swear to you that I have never touched your ring, that I have not seen it since this afternoon when it was on my cousin's hand.'

'I don't believe a word you say, Miss March,' said the Colonel rudely; and again the two women began their howling of reproach. I could stand it no longer.

'Look here, Miss Gretton,' I cried; 'the last time the ring was seen it was on your finger. It doesn't seem so very unlikely that you knew what became of it afterwards, that you know where it is lying now.'

'Oh! Frank, don't talk like that,' cried Agatha; while Mrs Gretton turned on me like an infuriated mother-hen, and asked me how I dared address such language to her child.

Louisa alone remained composed. 'It is natural that you should want to screen Agatha at any

one's expense,' she said; 'and perhaps you could manage it better if it weren't for her own admission, made in your hearing, that to oblige her brother she has done something which, if she confessed it, you would consider wrong.'

Her words were unanswerable. I looked at Agatha in a mute appeal for the explanation I felt it would be useless to demand. She only shook her head. I turned to Colonel Farrer, and addressed myself to him: 'As Miss March's future husband!—"Good gracious!" I heard Mrs Gretton exclaim, as if she doubted that I still could think of making Agatha my wife—"As Miss March's future husband, I take the whole responsibility of this matter. I am going out now to investigate it. I hope to make it all clear; but I promise you that if I cannot give you back your ring, I will pay you the value of it, if I have to sell the coat off my back and beg in the streets for the money.'

'Fine talk,' said the Colonel; 'but I won't trust to it. That young woman will be inside a police cell before she is half an hour older.'

'If she is, you shall know the lash of a horse-whip before another hour has passed,' I retorted. 'Keep any watch you like while I am gone; but if you send her out of this house, you will remember what you have done till your dying day.'

I hurried to the address given me by Louisa, in search of Will March. He lived not far off, in one of the gloomy streets off Theobald's Road, a locality not frequented by hansom and unknown to the cabman I had called. Thus some time was wasted before I found the place, and I knew that Agatha was suffering all the time. Happily, however, my brother-in-law elect was at home. It was May, and warm for the time of year; but he was cowering over a fire in one corner of the shabby stuffy room, and sucking desperately at a short briar pipe. He looked a miserable object, whom only his youth—he was younger than Agatha, only a little over twenty—made a fit object for pity rather than contempt. He was taken aback at my appearance. I think he guessed at once that I meant to tackle him on the subject of the help he had received from his sister, and tried to stiffen himself into an invertebrate obstinacy.

'I believe you are in want of money,' I began without any preamble of greeting.

'What's that to you?' he retorted with a rudeness that surpassed my own. 'I haven't asked you for any.'

'No; but you asked your sister, and that's the same.'

'Oh, is it?'

'You know what I mean—that your sister is engaged to me; and I'm not going to have her robbed, and tortured, and driven to despair through your conduct.'

'You'd better wait till Aggie herself complains before you take up that tone.'

'It is time to take it up when she is threatened with disgrace for helping you.'

'Disgrace!'

'Yes; she is accused of theft, and won't give a satisfactory explanation, for fear of compromising you.'

'That's nonsense. They can't make out anything against her.'

'I don't know about that. She is under guard

at this moment, and threatened with the police office. I don't myself understand her conduct; but I expect that you do. Now, look here, March; I wouldn't lend you a shilling to save you from penal servitude, as far as you yourself are concerned; but for Agatha's sake, I'll pay this debt of yours, or whatever it is, if only you'll make a clean breast of the matter.'

Confession did not come easily to my companion; he was too anxious to excuse himself to tell a straight story; but, put briefly, it was the familiar tale of gambling, debt, the cherished chum developing into the pressing creditor, and embezzlement committed to meet his claims.

'It's not much—only fifteen pounds; but it's enough to play the mischief with me if I can't account for it to-morrow. At least it would have been if Agatha hadn't helped me out of the bog.'

'Did she give you money?'

'Not exactly. She hadn't enough; and those beasts at the College she teaches at wouldn't advance her salary, though it's due next week. She thought she could get it that way; but they wouldn't give it her—the mean hounds.'

It was wonderful what scorn Will felt for the Secretary and Treasurer of that College.

'That was when she left me in the morning. When she came back in the afternoon she told me of the refusal, and we were at our wits' end, till she thought of something else.'

'What did she think of? What did she give you?'

'It doesn't matter about that, does it?' he asked, looking more uncomfortable than ever.

'That is just what does matter.'

'It was a ring.'

'A ring!' I sat down and groaned aloud. It was all true, then. Agatha was a thief. She had put her own head in the noose to save this miserable young scapegrace. But how could she have been so mad as to think she could escape detection?

'Where is it now?' I asked at last.

'Pawned.'

'Have you the ticket?'

'Yes.'

'And the money?'

'Yes.'

'I'll give you a cheque for the sum; but we must go to the pawnbroker to-night and redeem it.'

'It's too late.'

'If it were midnight, I must get it out to-night. I'd rout up the Seven Sleepers to get it. Come along and show me the place.'

'But look here; you'll act square?'

'I have promised you a cheque sufficient to cover that—deficit. I'll give it you just now if you like, if you'll give me the money you got for the ring and take me to the pawnbroker.'

He brought it out—two dirty five-pound notes, three sovereigns, and a handful of silver—a miscellaneous collection that made fifteen pounds in all. Fortunately, I had a cheque-book in my pocket, and gave him a cheque for the amount.

'It's all right, I suppose?' he said, fingering the paper dubiously.

'Of course it's all right,' I replied with some anger. 'I'm not a rich man; but I should

think myself disgraced if I incurred a liability I couldn't meet.'

He coloured at the taunt, but did not resent it. 'There's another thing,' he went on with more hesitancy. 'You won't throw Aggie over for this. She's really awfully fond of you; it would break her heart if anything came between you and her, and you know she's one of those quiet girls that things go fearfully deep with. She cried—you've no idea how she cried over that ring; but she thought she ought to help me. She has always helped me, you know. But upon my word, I—yes, I would now—I'd sooner go to jail than make any mischief between you and her. Promise me not to throw her over.'

'I don't know,' I answered slowly. 'There are some things one doesn't like to think of in one's wife. But still, as you say, it was for your sake. She wouldn't have done it for her own.'

'Not to save herself from starving,' said Will emphatically.

I said nothing, and we went out together. The pawnbroker's was near—a mean place, where business was done mostly in half-worn gowns and coats, thin blankets, silver watches, and tawdry dangling earrings. I could not but think that the sacred ruby of Ram Asoka had got into strange company.

My sternness and young March's pallid face made the pawnbroker comprehend that there was something wrong. I believe he thought I was a detective, and made but small demur about showing me the ring, though he kept assuring me that he was an honest tradesman who had never had so much as a suspicion about him. 'And the young gent looked like one that might have a thing of that sort naturally enough. But remember, sir, that I know nothing about it; I'm quite innocent!'

'All right,' I interrupted. 'There's no suspicion of you; you're in no danger if you'll make haste and produce that ring.'

He did so. Was the pang that went through me one of relief or shame? For it was not Colonel Farrer's ruby that I saw, but Agatha's diamond engagement ring.

#### HOW SOME POPULAR INSTITUTIONS BEGAN.

'REUTER' is a word which is pretty familiar to most newspaper readers, yet few are aware that Reuter's system of news-supply is practically not more than thirty years old. In 1849, Baron Reuter tried to introduce his agency into the metropolis; but the London newspapers would have nothing to do with him. At first, he confined his attention to the supply of financial intelligence; but in 1859 he managed to be first in the field with a report of the speech delivered by Napoleon III. at the New-year's reception in the Tuileries, and from thenceforward Reuter's Agency became an established fact.

The Press Association, or 'P. A.' as it is called by newspaper people, is an even more recent institution. Prior to 1868, it was unknown; but

in that year, when the telegraph system was taken over by the State, newspaper proprietors formed themselves into an Association for the distribution of news. That Association has now correspondents, one might almost say, everywhere; and there is not a town and hardly a village in the kingdom that does not possess its 'P. A.' man, who is ready to flash to the head office in London any important event occurring in his district. At the head office the item is carefully edited, and then sent to newspapers all over the country.

'Hospital Sunday' is another institution now deservedly popular, yet, strange to say, it has not yet reached its majority. For a long time it had been the practice on the Continent to make a special collection in the churches every year for the hospitals in each particular district; but until Dr James Wakley, editor of the *Lancet*, started the Metropolitan Hospital Home Fund in 1873, 'Hospital Sunday' was practically unknown in Great Britain.

Flower Services, which are now universally held, and which do so much to brighten the dreary lives of hospital patients and workhouse inmates, were initiated in 1853 by the Rev. W. M. Whittemore, D.D., rector of St Katharine Cree, Leadenhall Street, E.C. The flower service is now an annual institution in churches belonging to nearly every denomination in the kingdom.

Working-men's Clubs, so numerous now, did not exist a little over thirty years ago. In 1858, the Rev. E. Butcher Chatmer, vicar of St Matthias, Salford, established the first regularly organised Working-men's Club. Miss Adeline Cooper, with the Earl of Shaftesbury's assistance, followed suit with the Duck Lane Workmen's Club in Westminster in 1860; and in 1862, the Working-men's Club and Institute Union was established. At first, Working-men's Clubs—which really owe their origin to the zeal of the advocates of temperance—were teetotal establishments; but it was soon found that these, however excellent in intention, would never become national in the wider sense of the term; and other Clubs were organised the refreshments in which were not limited to beverages of a non-alcoholic character. These Clubs, many of them political, are now scattered far and wide throughout the country.

Not far removed from the Working-men's Club is the 'British Workman Public-house.' This movement was begun by Mr and Mrs Hind Smith in 1867. The 'British Workmans,' or Coffee Palaces as they are called, were established with the object of counteracting the attractions of the bar parlour. In 1875, the Cocoa House system was inaugurated at Liverpool; and most of the large towns in the kingdom are now fairly well provided with houses for the sale of non-intoxicating refreshments. Many of them, too, are so successful financially that they are able to pay a very respectable dividend.

Associated with the objects of the British Workman Public-houses are the Temperance Societies, and the origin of most of these is of recent date. The first teetotal pledge was signed by Mr Joseph Livesey and a few friends at Preston, on September 1, 1832; and the word 'teetotal' was unknown until it was invented by 'Dicky Turner,' one of the Preston band, in 1833.

There are now, probably, between five and six million teetotalers in the United Kingdom.

Among temperance societies the Good Templar Association occupies a prominent place. The 'I.O.G.T.' had its birth in New York in 1851. In 1868 it was introduced into England by Mr Joseph Malins, who is still the leading member of the order. Since its introduction into this country the Good Templar movement has obtained many adherents, though of late it does not seem to have engaged so much of public attention as it did some years ago. At the beginning of February 1890 the membership under the Grand Lodge of England numbered about one hundred thousand, and as these were joined during that month by the North of England Grand Lodge and the United Service Grand Lodge, the total membership must now reach an enormous number.

Another temperance agency which has obtained considerable notoriety is the Blue Ribbon movement. This also had its origin in America, where it was begun by Francis Murphy, and was known as the 'Murphy Movement.' It was inaugurated in England by Mr William Noble at the Standard Theatre, Shoreditch, on February 10, 1878. One million adherents to total abstinence were obtained during the first three years of its existence.

Speaking of agencies of this character, the early history of the Salvation Army suggests itself. This was begun in 1865 by the Rev. William Booth, under the title of the 'Christian Mission,' and was carried on under that name till 1878, when the title of Salvation Army was substituted. The 'Army' is now represented in every centre of population in the kingdom, and the uniform of its 'soldiers' is known in nearly every country in the world.

Another army, which, though of quite a different character from, and with more military associations than Mr Booth's, has become quite a regular institution in our midst, is composed of old soldiers, who receive the title of Commissioners. The idea of forming a corps of messengers came originally—as the name commissioner will suggest—from France, for Paris possessed its public street messengers before they were thought of in Britain. The corps was first established in this country by Captain E. Walter in 1859, and it now contains a large and most trustworthy body of men.

Among all our popular institutions, there are perhaps none which appeal more strongly to our sympathies than those which have for their object the saving of life in times of sudden danger. The Fire Brigade and the Lifeboat Service are the most prominent of these. From 1833 to 1866 the extinguishing of fires in the metropolis was performed by the Fire Insurance Companies; but in the latter year this duty was transferred to the Metropolitan Board of Works; and since then, the Metropolitan Fire Brigade, with Captain Shaw at its head, has enjoyed an ever-increasing popularity. Every town in Britain has now its Fire Brigade; and very few country districts are not possessed of some organisation, voluntary or otherwise, for the protection of life and property from fire.

The Lifeboat Service is an even more popular institution, and has a century's record of gallant deeds to look back upon. The Royal National

Lifeboat Institution was founded in 1824; but more than thirty years previously (in 1789) the first lifeboat made its appearance at South Shields. It was constructed by a Mr Greathead, whose services to mariners in danger were recognised by the Society of Arts, which presented him with fifty guineas and a gold medal.

The Ambulance Association, another life-saving agency, has already far exceeded the most sanguine anticipations of its promoters. It was established in 1877 by the Duke of Manchester, and since its establishment has been the means of conveying much-needed knowledge as to the preliminary treatment of the injured to probably not fewer than one hundred thousand students.

So much has been said and written about Post-office history, that it seems a work of supererogation to refer to it here. It may, not, however, be generally known that in 1683 a London upholsterer named Robert Murray successfully established a penny post in the metropolis; and that afterwards, when the system came into the hands of William Doweray, the business had become so valuable that Government, with an eye to the main chance, obtained a King's Bench decree that the whole thing should be 'handed over to and remain the property' of the royal establishment. The introduction of the penny-postage system, properly so called, in 1840 does not require a reference here.

The Money Orders issued by the Post-office had their origin in a private speculation by three Post-office officials, who began the system in 1792. At that time, however, no order could be issued for more than five guineas, and the charge for sending that amount was 4s. 6d. The system was taken over by the Post-office in 1838, and the five guineas for which 4s. 6d. was charged in 1792 can now be sent for fivepence.

Postal Orders are but a decade old. Their issue was begun in 1881; and since then, their popularity has increased year by year, so much so, indeed, that, in business circles, postal orders now frequently pass through many hands as a medium of exchange before being presented for conversion into cash at the Post-office counter.

## A ROMANCE OF MIDDLE AGE.

### CHAPTER II.—CONCLUSION.

THE next morning nothing unusual marked the conduct of either of the Miss Powers. Miss Sabrina was calmly dignified, as was her wont; and if Miss Elizabeth's cheeks were a shade paler than usual, her laugh was ever on her lips, and her spirits seemed even brighter than usual. That pride of ours which bids us don the mask of mirth was strong in her. Sabrina should never guess the impression that Dr Meadows' conduct had made upon her foolish old heart! While the sisters were sitting at breakfast, Bridget, their one domestic, brought in a foreign-looking letter. Chloë, their married sister, was living in Marseilles with her husband, M. Cervay, a French architect, who was superintending the building of a large theatre there; and her weekly letters were looked forward to with great pleasure by both sisters, though Miss Sabrina had an inborn horror of France and everything French.

The very words suggested something highly improper and objectionable, in her opinion. But this was not the usual day for Chloë's letter, so they felt a little anxious as the envelope was torn open.

'I hope nothing is wrong, Sabrina?' asked Miss Elizabeth. She would not have dreamed of looking over her sister's shoulder to ascertain for herself.

'No; nothing is wrong, Elizabeth; but the letter contains some important news,' answered Miss Sabrina, handing the letter to her sister.

The news was that M. Cervay had been urgently requested by his father, who lived in Chicago, and was failing in health, to pay him a long visit as soon as his present work should be at an end.

'Eugene will see the completion of his work here next week,' wrote Chloë, 'and we shall then start for Chicago. Work is scarce here; and my husband thinks of settling in the United States, probably near his father. But, meanwhile, we should like our one child, Bien Aimée, who is about nineteen, to have a quiet house. She is not very strong, and the unsettled life we shall lead for a time would be very bad for any girl. Dear sisters, you can guess what I am about to ask you. Will you take our child till we are settled in a home of our own? All arrangements shall be made. While I write, a telegram has come to hasten our visit, as my father-in-law is growing rapidly worse. Counting on your ready consent, we shall put Aimée under the escort of a friend who is also coming to England, and she will be with you, all being well, on the evening of next Friday.'

Then followed many injunctions to take care of 'our dear child, our Bien Aimée,' and to teach her the housewifely gifts that Chloë knew her sisters possessed.

When Miss Elizabeth had finished reading the letter, she drew a long breath.

'I am glad Chloë has such confidence in our love for her,' said Miss Sabrina with moist eyes. 'I shall write her at once to say how more than glad we shall be to have her child. She will brighten us up, quiet old maids that we are.'

'We will give her the front bedroom, Sabrina, and I will move into the little one over the kitchen,' said Miss Elizabeth, ever intent on kindly deeds.

But her sister opposed her with quiet determination. 'I shall sleep in the back room, Elizabeth. You know, my dear, how liable you are to take cold; and there is a most trying draught from that chimney.'

The intervening days—it was then Sunday—were spent in removing Miss Sabrina's belongings and making the guest's room as pretty as possible, Miss Elizabeth denuding her own room of many of its quaint ornaments that Bien Aimée might have everything bright around her.

On the Friday morning, Miss Elizabeth went down into the village to order supplies for the week-end, and as she came up the hill carrying a basket of fresh brown eggs, she met Dr Meadows coming out of the chemist's shop. He accosted her with a friendly greeting. The hand that lay in his for a moment trembled, and the basket nearly fell; but remembering Sabrina's injunctions, Miss Elizabeth drew her slight form up



with wounded pride and resolved to treat Dr Meadows very coldly.

'Shall I carry your basket for you, Miss Elizabeth?' he asked, bending down to catch a glimpse of her averted face.

'Thanks, Dr Meadows; but I prefer to carry it myself.'

For a few moments silence ensued; and Dr Meadows stopped at the gate of his own house, and determined to make one more attempt to melt the little lady's icy tones. 'May I walk up with you, Elizabeth?' he asked in tones of reproachful tenderness and respect.

Wounded by what she was forced to believe his meaningless sentimentalism, Miss Elizabeth looked straight into Dr Meadows' eyes and said coldly: 'No; I thank you—I prefer to walk by myself.'

With a low bow, the Doctor turned in at his gate; and Miss Elizabeth, with sore and wounded heart, toiled up the hill alone—only prevented from bursting into tears by the grim satisfaction of having done her duty.

About eight o'clock that evening the village omnibus drew up at the back gate of Sunnysbank Cottage, and a slight tall girl, with pale tear-stained cheeks, alighted, and ran into the arms so kindly held out to greet her. She suffered herself to be led into the cool drawing-room and laid on the couch by the open window.

'Poor tired child!' said Miss Sabrina, with unwonted tenderness, smoothing the girl's dark hair as she lay and cried for very weariness. 'But cheer up, my dear. Here is your aunt Elizabeth bringing you some sweet cakes of her own baking and a glass of new milk. Try to eat, and then you shall go to bed.—To-morrow you will wake up quite refreshed and happy.'

Thus urged, Aimée dried her eyes, and slipping her arm round her aunt's neck, kissed her on both cheeks in her impulsive foreign way.

'You are a good kind aunt.—Aunt Sabrina, is it not?' she asked in broken English.—'And you are Aunt Elizabeth? But I shall call you Tante Elise; it is prettier, do you not think?' she added, turning to Miss Elizabeth.

'Call me what you like, dear, if you will only eat what I have brought you. To-morrow, we will hear all about your mother and father,' said her aunt, stooping to kiss the cheek held up to her.

'Ah, you are so kind, so kind,' and the tired girl fell to crying again, touched by the tenderness of the two gentle ladies.

'Come, my dear,' said Miss Sabrina when Aimée had been prevailed upon to drink the milk and nibble a morsel of cake. 'I am going to put you to bed without asking your leave.'

Nothing loth, Aimée followed her aunt upstairs, and was soon tucked up in her welcome bed, where she slept the dreamless sleep of wearied youth, and woke the next morning to see a yellow ray of sunshine slanting in through the white blind.

'Ah, you look better to-day, my dear,' Miss Sabrina said as Aimée came into the parlour at breakfast-time with cheeks rosy from a walk round the garden and eyes bright after a long sleep.

'Oh yes, ma tante. I do not mean to be a damp blanket—I think you say,' she answered gaily; 'and I may explore these lovely woods

behind the house, and learn to bake these sweet cakes—may I not? And ah, but there will be a thousand things to do; and you must hear all about la belle France.'

A few days passed full of delightful novelty to Aimée; but Miss Sabrina noticed that her sister's cheeks were growing paler, and was not deceived by her assumed cheerfulness.

'Elizabeth,' she said one evening, after Aimée had gone to bed, tired from a long ramble in the woods, 'I have been thinking that this would be a very good opportunity to pay your long-promised visit to Mrs Carruthers—naming an old friend of Miss Elizabeth's who had recently become a widow. 'You see, I shall have Aimée to take care of me; and I think the change will do you good.'

There was no escaping the scrutiny of those all-seeing gray eyes, so Miss Elizabeth quietly dropped her mask and assented.

Accordingly, the next day she packed her little trunk, and steamed away submissively to her friend's house at Carlisle, a distance of about twenty miles.

On the evening after her departure, Aimée was watering the grass in front of the porch, when a low cry reached her ears through the open door that led into the lobby. Running into the house, she found her aunt sitting on a chair in the hall, evidently in great pain.

'Hélas!' she cried, 'what is it you have done, ma tante?'

'I fear I have sprained my ankle, dear,' answered Miss Sabrina, her face all drawn with pain. 'Will you send Bridget for Dr Meadows? I cannot move till he has done something for me. I stupidly caught my foot in the stair carpet where those nails have come out.'

In about a quarter of an hour Dr Meadows came hurrying in, and, with Bridget's assistance, carried Miss Sabrina up to her bedroom, after first bandaging the injured ankle.

Leaving her with strict injunctions not to move, he went down-stairs, followed by Aimée, who introduced herself in her pretty foreign way: 'Vous savez—ah, you know, monsieur—that Tante Elise is away—Mees Elizabeth, I should say. It would be better—would it not?—to keep the news of this little accident from her, in order not to spoil her holiday?'

'Is Miss Elizabeth away?' asked the doctor rather abruptly, knitting his heavy brows.

'Ah yes. She was not looking as she ought. Her cheeks were pale; so ma tante sent her to get a little change.'

'I am sorry to hear she is not well,' said Dr Meadows, as he stood with his hand upon the half-open door.—'Well, you will not allow your aunt to get out of bed, Miss Cervay. I will call in the morning. Good-evening to you.'

'How nice Monsieur le Docteur is,' said Aimée when she returned to her aunt's bedside. 'He has an air so strong and noble. Is he long your doctor?'

'He is a very old friend,' said Miss Sabrina with some constraint. 'But we have been fortunate enough not to require his professional services very often.'

'He is married, n'est-ce pas?'

'No; he is a widower,' and the subject dropped. A week or two passed, and the doctor called

every day. He was amused by Aimée's impulsive ways, and enjoyed listening to her lively chatter. She soon became quite at home with him, and told him about her father and mother, and 'la belle France;' for he was not a busy man now, and would stroll round the garden with her after seeing his patient, and draw out her childish confidences, till her affectionate nature, together with the instinct that made her trust him so completely, soon caused her to regard him as an old friend—almost as a temporary father.

Soon Miss Sabrina was allowed to come downstairs for a few hours every day, and from the drawing-room window where she lay on the couch she watched the middle-aged man and the young girl take their habitual stroll together, and gradually the idea grew in her mind that Dr Meadows was seeking a bride in earnest—the niece, and not the aunt.

The night before Miss Elizabeth's return, Aimée was talking to the doctor of her younger aunt. He had been drinking tea with them in honour of Miss Sabrina's first walk round the garden. 'I should say, mon ami,' she said reflectively, 'if Tante Elise were younger, that she had "la grande passion." For see, when a girl in France has it, she grows pale; she seems not to hear you when you speak to her; and then her laugh sounds strange and harsh. So it is with Tante Elise; and are not English and French alike in that? But then, alas! I fear she is too old for la grande passion.'

'Too old!' said the Doctor indignantly, adding involuntarily: 'I am not too old.'

Something in his voice caught the girl's attention. She looked up curiously at him, and he, foolish ancient lover, blushed like a girl beneath her inquiring eyes. 'Ah!' she cried archly, 'you—my mock-papa—are you in love? Why, of course,' she cried again, clapping her hands in childish delight at her own quick perception. 'You are in love with Tante Elise. Why did I not guess before?' Then, noticing that his face was very grave, her mood changed at once, and raising his hand to her lips, she kissed it impulsively. 'Ah, I am so sorry,' she said apologetically. 'I should not have said it. I will not be rude again;' and with a hasty 'Good-bye' she turned and ran back into the house.

Miss Sabrina had been watching the little scene, and never doubted that Dr Meadows would now ask for Aimée's hand at the earliest opportunity.

'I shall refer him to her parents, of course,' she thought; 'yet I am sure they could not but approve. I knew he would choose a young bride. What a good thing I warned Elizabeth in time. I shall tell her first thing when she comes home; and meanwhile I will not mention the subject to Aimée.'

The next day Miss Elizabeth returned, looking a shade fresher for her change; and for a long time that evening the sisters were closeted in Miss Sabrina's bedroom. At the end of that time Miss Elizabeth emerged very white and drawn, and she knelt long into the silent watches of the night, praying for the spirit of unselfishness, which should make her rejoice in her niece's good fortune.

When Dr Meadows left Aimée at the gate,

he swore inwardly at having betrayed himself; but when his wrath had cooled a little, he thought of her words, and soon the manliness within him began to cry out against the timidity and self-depreciation that had held him back from making a straightforward appeal to Miss Elizabeth's feelings. Then and there he decided once more to 'screw his courage to the sticking-point,' and 'We'll not fail' he said to himself as he stood on the doorstep; and he pulled the bell so vigorously that the servant came running to the door in dishevelled alarm.

Accordingly, the morning after Miss Elizabeth's return he donned a fine white waistcoat, buttoned up his frock-coat with agile fingers, and sallied forth to place his happiness in the scale of fickle fortune. He was fortunate enough to find Miss Elizabeth alone in the drawing-room arranging flowers in a gown of Quaker gray. Determined at once to broach the subject uppermost in his mind, he began—after a little humming and hawing—in this wise: 'Miss Elizabeth, I have come to speak to you on a subject which concerns my happiness very deeply.'

So it was true; Sabrina had been quite right!

'Yes, Dr Meadows,' said Miss Elizabeth nervously, pulling a pansy to pieces as she spoke. 'I know—that is—we are quite prepared—I will go and fetch Sabrina.'

'Fetch Sabrina?' echoed the good Doctor in astonishment at this novel way of receiving a speech so obvious in its meaning.

Miss Elizabeth became more and more flurried. 'Well—I will fetch Aimée,' she said tremulously. Then, catching the Doctor's eye, and reading a strange tale therein, she added wildly, in her confusion, 'or both of them.'

Suddenly it all flashed upon the Doctor. He moved to where Miss Elizabeth was standing, and took both her hands in his. 'Is it possible, Elizabeth, that you can mistake what I mean?'

'Oh, please don't talk like that, Dr Meadows,' sobbed Miss Elizabeth in dismay. 'I promised Sabrina that I would not let you lead me into foo-oo-lish sentiment-a-lism.'

'What do you mean, Elizabeth? I love you. I want you to be my wife. It is "Yes," is it not?' he asked tenderly, for Miss Elizabeth had unconsciously laid her head on his shoulder and was sobbing as if her heart would break.

'But Sabrina said you were only a bee-ee-e,' she murmured piteously through her tears, 'and that you—flew about—sucking a little honey—here and—there; and that if you ever were to settle, it would be on some g-gorgeous flower; and I am only a—comparatively p-poor old maid.' She had learned her lesson well.

At that moment Dr Meadows hated Miss Sabrina with a vindictive hatred. But he controlled it, and gently putting his arm around Miss Elizabeth, he drew her to him and tried to soothe her agitation. 'I don't think I am a bee,' he said, hardly able to keep from smiling at the apt comparison: 'and if I am, why, my dear, I have got a cosy hive, and you shall come and be my queen.'

Then he laughed at his foolish words, and Miss Elizabeth laughed too, and was just wiping her eyes, when Sabrina opened the drawing-room door. She stood still for a few moments, looking with bewildered eyes at the 'tableau vivant.'

'Miss Sabrina,' said Dr Meadows, stepping forward, 'I have asked your sister to become my wife, and she has done me the honour to accept my offer. I cannot ask for your sanction, but I should like your blessing and continued friendship. Believe me, I am not the light rover you imagine. I will take care of Elizabeth, and you shall not feel that you have lost a sister; but only, by God's help, that you have gained a brother.' And stooping, he raised Miss Sabrina's hand to his lips.

## AN IMPORTANT IRISH INDUSTRY.

### HOW IT MAY BE REVIVED.

FOR some time past the production of Irish flax has been on the decline. It is one of the most distressing facts in connection with that distressful country, that while the linen industry of Belfast has been growing and prospering, the native cultivation of the raw material upon which it depends has been growing smaller by degrees and miserably less. Flax-imports into the United Kingdom from the Continent now amount to the formidable figure of seven million pounds per annum. Russia, Holland, and Belgium each send their quota to the merchants of Belfast. According to competent authorities, this state of things does not arise from the natural inferiority of Irish flax or the unsuitability of soil and climate. It is said that Ireland should not only be able to provide for all its own needs, but should also be a large exporter of flax. Professor Sullivan of Cork writes: 'I have examined all the soils of Europe and of nineteen American States; none of all these possesses the properties for the production of fibre equal to the soil of Ireland.' The failure of Irish flax in the native market, which is just now attracting serious attention across St George's Channel, can be explained only by the defective way in which the crop is cultivated.

There is one all-important difference between the flax industry of the Continent and that of Ireland. In Ireland, the farmers produce the crop and prepare it for the cloth manufacturer. In Belgium, in Holland, and in Russia, on the other hand, the farmer concerns himself solely with the cultivation of the crop. The preparation of the fibre is in the hands of persons specially skilled and trained in the work. The continuance in Ireland of the old system is known to entail much loss and waste; while it is seemingly on account of the greater efficiency and higher quality arising from the division of labour that the Belfast manufacturers so frequently prefer the foreign to the home-grown article. After the farmer has sown the seed and gathered the crop, several processes remain before the flax can be used in the cloth-mills. The most important are technically known as 'steeping' and 'scutching.' By steeping is generally meant sinking the straw in deep water. Different methods of steeping prevail in different countries, according to local circumstances. In Holland, stones are scarce, so the flax has to be laid on the surface of the water and then covered with mud raked up from the bottom of the water. The finest flax in the world comes from Courtrai, in Belgium, where the fibre is steeped in the

river Lys, whose velocity is only at the rate of three miles an hour. The straw is sunk packed in crates, and for many miles both banks of the river are used as steeping-grounds. In Russia, on the other hand, the flax is merely spread upon the ground and the rain is left to do the steeping. On Irish flax farms the straw is thrown into pits or wells with the seed still on it, the farmers not having learned the continental trick of saving the seed and yet getting good fibre. Much expense is consequently incurred in obtaining seed from abroad. On the Continent, too, the method of 'scutching' is widely different, the yield of fibre being usually wider and better. So general is the necessary technical knowledge that in the scutching-mills the labour is mostly that of girls and lads from seventeen to twenty years old, instead of men, as in Ireland, earning thirty shillings a week. Both the cheapness and the efficiency of the labour are said to be due to the separation of the functions of the producer from what are really those of the manufacturer.

There are two methods by which this is accomplished. The farmer may buy the seed and sow it on his land, in order to sell it to the factor, who will prepare the flax for the market. The factor, on the other hand, may himself provide the seed and hire the land from the farmer, whose remuneration for preparing the land, sowing the seed, &c., will be included in the rent. It is to the adoption of one or the other of these plans that some people in Ireland are looking for a revival of what should be one of its most important industries. At the present time the crop is only cultivated to any extent in seven out of the thirty-two counties, the production of flax in all the southern counties being quite insignificant. The average crop of the seven counties is worth eight hundred thousand pounds per annum; so that, if the other twenty-five counties were producers in the same proportion, Ireland's flax industry—regardless of the seed that should be saved under an improved system, which would in itself represent a considerable sum—could be made to realise an income of between three and four million pounds yearly. As a matter of fact, the experts are of opinion that with its well-watered valleys, the south of Ireland is even better adapted to the production of flax than the north. Before the farmers of the south can supply Belfast market with fibre equal to that which is now imported from across the seas, there must, it is thought, be some intermediate agency by which the preparatory processes could be undertaken. Some two years ago, a Belfast manufacturer made a very successful experiment with flax-growing in the south on the continental system. He rented sixty acres of land near Cork which he had prepared for a flax-crop. Last season the land yielded eighty stones of fibre of the value of ten shillings per stone, and seed to the value of six pounds per acre, the profit being over three hundred per cent. This is probably an exceptionally favourable result, but it certainly shows that, under proper conditions, the production of flax in the southern parts of the island can be made to yield wealth beyond the Irish farmers' dreams of avarice. In order to give the continental plan a trial in Tipperary, Mr Thomas Dickson,

M.P., has started a guarantee fund for the renting and working of a hundred acres. Ireland sorely needs industries of some kind or other; and in this movement all party antagonism can surely be sunk.

### ALUMINIUM.

ALUMINIUM has steadily advanced in importance of late years, and recent discoveries, largely reducing the cost of production, cannot fail to lead to a considerably augmented output of this metal, which appears undoubtedly destined to play an increasingly commanding part in the metallurgical world. Hence, a few words dealing with this comparatively new metal, its history, methods of production, and applications in the arts and industries, may prove of some passing interest to our readers.

The name is derived from the 'alumen' of the Romans, though the metal we thus designate is not believed to have been known to the ancients. Margraff, in the middle of the eighteenth century, proved the earth alumina to be a distinct substance; but it was not until about the year 1828 that Wöhler, to whom must be credited the true discovery of aluminium, first succeeded in extracting the metal. Aluminium remained, however, a laboratory product until some thirty years later, when St Claire Deville, under the auspices of Napoleon III., perfected its manufacture, and placed the metal on a commercial basis. The first works for producing aluminium in any quantity were established near Arles, in France, and by what has since become known as the Deville process; the metal could be procured in Paris in 1857 at about 7s. 6d. per ounce.

In 1860, works were started at Battersea, near London, in which aluminium was produced more economically from cryolite and sodium by methods due to Dr Percy, and saving about half the cost of the Deville process. Cryolite, which contains about 13·5 per cent of aluminium, is, it may here be stated, a mineral found only in one part of Greenland; but so extensive is the deposit that no danger exists of its exhaustion.

Before dealing with the many processes now in the field for the cheap production of aluminium, we may briefly glance at the properties and special characteristics of the metal under consideration. Aluminium has a white silver-like appearance, is both malleable and ductile; and from its sonorous properties is much used in the manufacture of bells. An exceedingly important feature is its lightness, a property which favours its employment for many special purposes. Aluminium has a specific gravity of only 2·56—that is, is two and a half times as heavy as water, and is four times lighter than silver. Heat and electricity are conducted by aluminium as well as by silver; whilst it does not oxidise in air even at red-heat, has no action on water at ordinary temperature, and preserves its lustre where silver would tarnish; being thus specially remarkable as the lightest metal capable of resisting the action of air even in the presence of moisture.

We have already indicated the broad feature of the production of aluminium. At the present

time the principal processes in the field for the manufacture of the metal are: the Castner process; the Netto process; the Cowles electrical process (differing from the first two named in not producing the metal itself, but alloys of aluminium with other metals), the Grabau system, the Héroult process (in use at Neuhausen, in which again electricity is employed), and the Hall method (carried out both in Great Britain and America, and extracting the metal from clay).

Passing to the varied uses to which this comparatively new metal has been put, we find, amongst others, telescope tubes, opera glasses, sextants, physical and surgical apparatus, statuettes and works of art; culinary utensils, coinage, jewellery, and a host of similar objects made from it, in which lightness and resistance to tarnishing are desiderata.

In forming alloys generally, aluminium has a very wide field. With iron, three or four pounds to the ton reduces the melting-point to such a liquid state that the mixture fills the smallest interstices and produces the finest castings. With copper, steel, and silver, aluminium also produces valuable alloys.

It is not a little curious to note that a metal so difficult and costly of extraction is in its oxidised condition very abundantly met with in nature. Thus, an ordinary brick contains an appreciable amount of aluminium; and a recent writer has pointed out that an annual production of ten million tons of the metal from such a source would at the end of one hundred years leave practically untouched in this country alone the inexhaustible deposits to be found.

Enough has been said to prove the many valuable properties and ever-increasing utility of the new metal; and with the unlimited supplies provided by Nature, and the constantly improved methods for cheapening production, there can be but little doubt that a very extended sphere lies before the metal we have briefly sketched.

### THE SEA.

A RICH red radiance fills the western sky  
Ere darkness comes once more;  
The weary waves with ceaseless rise and fall  
Dash on the pebbled shore.

The mournful cadence of the seething tide  
Is silent in mine ear;  
My heart is full of that sweet soul who died  
In the wane of yester year.

The wind sounds shrilly in the hollow cave,  
The sea-gull shrieks hard by,  
The surging breakers ever burst and lave  
The rocks beneath; but I

Am deaf unto wild Nature's harmony.  
One soft voice fills mine ears—  
The voice of one that I shall never see  
Through all the coming years.

W. DEVEREUX.

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